

Listing of Claims

1. A parallel reaction device, comprising:

(a) a reaction block comprising a reaction block body having an upper surface, a lower surface, four sides, and an array of reaction wells, wherein at least one reaction well in the array is disposed through the reaction block, which reaction well comprises an inlet portion and an outlet portion, and wherein recessed regions are disposed on at least two of the sides;

(b) a band disposed around the reaction block and retained on the reaction block within the recessed regions, which band comprises at least one first top hinge component, at least one first top latch component, at least one first bottom hinge component, and at least one first bottom latch component;

(c) a top lid comprising at least one second top hinge component and at least one second top latch component, wherein the second top hinge component engages the first top hinge component and the second top latch component engages the first top latch component; and,

(d) a bottom lid comprising at least one second bottom hinge component and at least one second bottom latch component, wherein the second bottom hinge component engages the first bottom hinge component and the second bottom latch component engages the first bottom latch component.

2. (Original) The parallel reaction device of claim 1, wherein the reaction block is disposable.

3. (Original) The parallel reaction device of claim 1, wherein the reaction block comprises cavities disposed between and proximal to inlet portions of adjacent reaction wells to direct fluidic materials away from other inlet portions.

4. (Original) The parallel reaction device of claim 1, wherein at least a segment of the reaction well comprises an inner and an outer cross-sectional shape independently selected from the group consisting of: a regular n-sided polygon, an irregular n-sided polygon, a

triangle, a square, a rounded square, a rectangle, a rounded rectangle, a trapezoid, a circle, and an oval.

5. (Original) The parallel reaction device of claim 1, wherein at least two regions of the reaction well comprise different inner or outer cross-sectional dimensions.

6. (Original) The parallel reaction device of claim 1, wherein one or more reaction wells further comprise a filter disposed therein.

7. (Original) The parallel reaction device of claim 1, wherein outlet portions of the array of reaction wells comprise a footprint that corresponds to wells of a micro-well plate.

8. (Original) The parallel reaction device of claim 1, wherein the outlet portion comprises an outlet spout having a smaller inner cross-sectional dimension than other regions of the reaction well, and wherein a transition area between the outlet spout and the other regions in the reaction well is abrupt or tapered.

9. Canceled.

10. (Previously presented) The parallel reaction device of claim 1, wherein the top lid comprises at least one protrusion disposed on a surface that engages the reaction block, which protrusion comprises at least one protruding annular ridge that is configured to press a top gasket into contact with the inlet portion of the reaction well to radially seal the inlet portion.

11. (Original) The parallel reaction device of claim 1, wherein the top lid comprises an array of protrusions that corresponds to the array of reaction wells.

12. (Previously presented) The parallel reaction device of claim 1, wherein the top lid produces a substantially even clamp load across all inlet portions.

13. (Previously presented) The parallel reaction device of claim 1, comprising top and bottom gaskets.

14. (Previously presented) The parallel reaction device of claim 1, wherein the bottom lid produces a substantially even clamp load across all outlet portions.

15. Canceled.

16. (Previously presented) The parallel reaction device of claim 1, wherein the bottom lid further comprises at least one protrusion disposed on a surface that engages the reaction block, which protrusion is configured to press a bottom gasket into contact with the outlet portion of the reaction well to seal the outlet portion.

17. (Original) The parallel reaction device of claim 1, wherein the top and bottom lids are removably attached to the reaction block.

18. (Original) The parallel reaction device of claim 1, wherein the top and bottom lids open independently of one another.

19. (Original) The parallel reaction device of claim 1, wherein the top and bottom lids comprise metallic or polymeric materials.

20. (Original) The parallel reaction device of claim 1, wherein the top and bottom lids each comprise at least a first alignment structure complementary to at least a second alignment structure on a controller apparatus to align the parallel reaction device relative to the controller apparatus.

21. (Previously presented) The parallel reaction device of claim 13, wherein the top gasket comprises at least one protrusion, which protrusion axially aligns with the inlet portion.

22. (Previously presented) The parallel reaction device of claim 13, wherein the bottom gasket comprises at least one protrusion, which protrusion axially aligns with the outlet portion.

23. (Previously presented) The parallel reaction device of claim 13, wherein the top and bottom gaskets comprise sheets of gasketing material.

24. (Previously presented) The parallel reaction device of claim 13, wherein at least one of the top and bottom gaskets comprises an array of protrusions, wherein at least one protrusion axially aligns with the reaction well.

25. (Original) The parallel reaction device of claim 1, wherein the reaction block comprises one or more of: glass, metal, or a polymer.

26. (Original) The parallel reaction device of claim 25, wherein the polymer comprises polytetrafluoroethylene.

27. (Original) The parallel reaction device of claim 1, wherein the reaction block comprises 6, 12, 24, 48, 96, 384, 1536, or more reaction wells.

28. (Original) The parallel reaction device of claim 27, wherein each reaction well is disposed through the reaction block.

29. (Original) The parallel reaction device of claim 1, wherein the top lid further comprises an array of apertures disposed through the top lid, wherein at least one aperture axially aligns with the reaction well.

30. Canceled.

31. (Original) The parallel reaction device of claim 29, wherein the aperture is tapered.

32. (Original) The parallel reaction device of claim 29, wherein each member of the array of apertures axially aligns with a different reaction well.

33. (Original) The parallel reaction device of claim 29, wherein the protrusion comprises a protruding annular ridge disposed around the aperture.

34. Canceled.

35. (Previously presented) The parallel reaction device of claim 1, wherein the recessed regions are disposed on opposing sides of the reaction block proximal to a midpoint between upper and lower surfaces of the reaction block.

36. Canceled.

37. (Previously presented) The parallel reaction device of claim 1, wherein each hinge component independently comprises a male or a female lift-off hinge component.

38. (Previously presented) The parallel reaction device of claim 1, wherein each latch component independently comprises a latch body or a keeper plate.

39. (Original) The parallel reaction device of claim 38, wherein the latch body comprises a rotatable draw latch body.

40-71. Canceled.

72. (Withdrawn) A reaction block comprising an array of reaction wells, wherein at least one reaction well in the array is disposed through the reaction block, which reaction well comprises an inlet portion and an outlet portion, which reaction block comprises at least one pair of substantially opposing recessed regions disposed in opposing surfaces of the reaction block proximal to a midpoint of each surface, which opposing recessed regions mount at least one lid attachment component.

73. (Withdrawn) The reaction block of claim 72, wherein the reaction block is disposable.

74. (Withdrawn) The reaction block of claim 72, wherein the reaction block comprises cavities disposed between and proximal to inlet portions of adjacent reaction wells to direct fluidic materials away from other inlet portions.

75. (Withdrawn) The reaction block of claim 72, wherein at least a segment of the reaction well comprises an inner and an outer cross-sectional shape independently selected

from the group consisting of: a regular n-sided polygon, an irregular n-sided polygon, a triangle, a square, a rounded square, a rectangle, a rounded rectangle, a trapezoid, a circle, and an oval.

76. (Withdrawn) The reaction block of claim 72, wherein at least two regions of the reaction well comprise different inner or outer cross-sectional dimensions.

77. (Withdrawn) The reaction block of claim 72, wherein one or more reaction wells further comprise a filter disposed therein.

78. (Withdrawn) The reaction block of claim 72, wherein outlet portions of the array of reaction wells comprise a footprint that corresponds to wells of a micro-well plate.

79. (Withdrawn) The reaction block of claim 72, wherein the outlet portion comprises an outlet spout having a smaller inner cross-sectional dimension than other regions of the reaction well, and wherein a transition area between the outlet spout and the other regions in the reaction well is abrupt or tapered.

80. (Withdrawn) The reaction block of claim 72, wherein the reaction block comprises one or more of: glass, metal, or a polymer.

81. (Withdrawn) The reaction block of claim 80, wherein the polymer comprises polytetrafluoroethylene.

82. (Withdrawn) The reaction block of claim 72, wherein the reaction block comprises 6, 12, 24, 48, 96, 384, 1536, or more reaction wells.

83. (Withdrawn) The reaction block of claim 82, wherein each reaction well is disposed through the reaction block.

84. Canceled.

85. (Currently amended) A reaction block container, comprising:

(a) a band that comprises one or more band portions and having attached thereto at least one first top hinge component, at least one first top latch component, at least one

first bottom hinge component, and at least one first bottom latch component, wherein the band is configured to be disposed around opposing surfaces, and retained with recessed regions of a reaction block when the reaction block container is attached to the reaction block;

(b) a top lid comprising at least one second top hinge component and at least one second top latch component attached to the top lid, wherein the second top hinge component engages the first top hinge component and the second top latch component removably engages the first top latch component; and,

(c) a bottom lid comprising at least one second bottom hinge component and at least one second bottom latch component attached to the bottom lid, wherein the second bottom hinge component engages the first bottom hinge component and the second bottom latch component removably engages the first bottom latch component.

86. (Currently amended) The reaction block container of claim 85, wherein each hinge component independently comprises a male or a female lift-off hinge component, wherein: a) the first top hinge component is a male hinge component if the second top hinge component is a female hinge component; b) the first hinge top component is a female hinge component if the second top hinge component is a male hinge component; c) the first bottom hinge component is a male hinge component if the second bottom hinge component is a female hinge component; and d) the first hinge bottom component is a female hinge component if the second bottom hinge component is a male hinge component.

87. (Currently amended) The reaction block container of claim 85, wherein each latch component independently comprises a latch body or a keeper plate, wherein: a) the first top latch component is a latch body when the second top latch component is a keeper plate; b) the first top latch component is a keeper plate when the second top latch component is a latch body; c) the first bottom latch component is a latch body when the second bottom latch component is a keeper plate; and d) the first bottom latch component is a keeper plate when the second bottom latch component is a latch body.

88. (Original) The reaction block container of claim 87, wherein the latch body comprises a rotatable draw latch body.

89. (Previously presented) The reaction block container of claim 85, wherein the top lid, the bottom lid, or both lids further comprise at least one protrusion disposed on a surface that is configured to engage a reaction block.

90. (Original) The reaction block container of claim 85, wherein the top and bottom lids open independently of one another.

91. (Currently amended) The reaction block container of claim 85, wherein the top lid further comprises an array of apertures disposed through the top lid, wherein at least one aperture axially aligns with at least one reaction well disposed in a reaction block when the reaction block is placed in the reaction block container.

92. (Original) The reaction block container of claim 91, wherein each member of the array of apertures axially aligns with a different reaction well disposed in the reaction block.

93. (Original) The reaction block container of claim 91, further comprising a protruding annular ridge disposed around the aperture.

94-119. Canceled.